

REMARKS

Applicants respectfully request reconsideration of the application in view of the foregoing amendments and response.

The Amendments

Applicants have cancelled previously withdrawn claims 1-13, 62-135 and 155-167.

Applicants have amended claim 136 so that it now includes a limitation of cancelled dependent claim 146 and is directed to a hybrid polymer comprising a “macroporous polymer substrate.” Support for this amendment may be found in the specification at e.g., page 20, line 24 – page 22, line 27.

In addition, other changes have been made to claim 136 which Applicants believe clarify the hybrid polymer subject matter of the claim in view of the Examiners remarks in his final rejection notice. Support for these changes may be found throughout the specification including at page 5, lines 17-19, page 9, lines 4-5, and page 12, lines 23-25,

Applicants have also amended claims 140 and 141 in order to clarify the hybrid polymer structures specifically described by those dependent claims. These amendments are supported by the specification at e.g., page 19, line 15–21.

Applicants have cancelled claim 146 in view of the amendment of claim 136 with the limitation “macroporous polymer substrate.”

The amendments add no new matter to the application. Applicants have made the above amendments in view of the Examiner’s comments in his prior office action, and believe that these amendments clarify the claims and place them in condition for allowance (or in better form for appeal) without creating any new issues.

Response

1. The Pending Claims

Applicants acknowledge their previous inadvertent error in reciting claims 155-167 as still pending, and acknowledge that these claims were deemed withdrawn in view of the Examiner’s initial restriction. Further, in view of the current Final Rejection, Applicants have cancelled all previously withdrawn claims 1-13, 62-135 and 155-167.

2. Interpretation of Claim Limitations

Applicants acknowledge that the Examiner's interpretation of the terms "co-continuous" and "architecture" is not inconsistent with the Applicants' use of these terms in the specification. Applicants also wish to clarify their understanding of the claim limitation, "a surface modified to facilitate co-continuity of functional groups to an external environment." As supported by the specification (see, e.g., page 6, lines 25-30), this limitation is intended to mean that "the substrate polymer presents a high surface area to maximize the accessibility of functional groups to an external environment." For example, the substrate polymer may have a grooved or porous surface morphology or may be modified to provide such a surface morphology. Further Applicants believe that a "macroporous polymer" would be understood by one of ordinary skill in the art to mean a polymer comprising a large number of pores or voids having diameters ranging from about 50 nm to about 1000 nm. Generally, Applicants note that macroporous polymers are made by specific and careful design and not according to the conventional polymer processing techniques. Applicants have not attempted define any terms in derogation of their common usage. Applicants have only attempted to overcome a fundamental difficulty of using words to characterize their invention: a hybrid polymer structure with unique properties related to its functional characteristics in a changing external solvent environment. As stated above, Applicants believe that the Examiner's interpretation of the claim limitations based on the common meaning is consistent with the definition based on the specification.

3. The Cited Prior Art References

Applicants have carefully reviewed the Examiner's comments and the prior art references cited and have attempted to provide claim language so as to clarify what they believe are the novel structural and functional characteristic distinguish the hybrid polymers of their invention over those disclosed in the cited art. Specifically, Applicants have amended claim 136 to clarify that it is the functional groups of the hybrid polymer structure that must be co-continuous to an external environment. Applicants have also amended claim 136 to clarify that the functional groups must remain co-continuous "with one or more different external environments."

In addition, Applicants have amended claim 136 so that it now includes the feature from cancelled dependent claim 146, namely that the polymer substrate is macroporous. The production of macroporous polymers is discussed generally in the specification at page 20, line 24 – page 22, line 18, and production of specific exemplary macroporous polymers is described

in the application at page 31, lines 21-27.

In view of these amendments, Applicants believe that claim 136 now recites a hybrid polymer structure not anticipated or rendered obvious by the prior art references of Pasic et al., Chin et al., or Rolando et al. Specifically, none of the cited references teaches or suggests a hybrid polymer structure comprising the combination of: (1) a macroporous polymer substrate with a surface modified to facilitate co-continuity of grafted polymer functional groups to an external environment; and (2) one or more polymer grafts in pellicular formation on the surface of the macroporous polymer substrate, wherein said grafted polymers have a combined thickness less than 50 μm , and functional groups which are capable of remaining co-continuous to one or more different external environments. More specifically, Chin et al. and Rolando et al. disclose graft copolymers in which the graft is formed through the entire polymer matrix. In contrast, the graft polymers of the present invention are formed only at the surface of the polymer substrate. Perhaps more significantly, neither discloses a macroporous polymer substrate. As for Pasic et al., although this reference discloses thin polymer coatings on the surface of a substrate polymer, there is no disclosure of such thin layer grafts on the surface of a macroporous polymer substrate. A variety of substrate polymers are disclosed by Pasic et al. at columns 1 and 2, but none are expressly or inherently macroporous. Consequently, Applicants believe that the rejections in view of the prior art Chin et al., Rolando et al., and Pasic et al., are now traversed, and the claims now are in allowable form.

CONCLUSION

In view of the foregoing amendments and remarks, the Applicants believe that the application is in proper form and condition for allowance. If, in the opinion of the Examiner, the amendments should not be entered, or the claims are deemed unallowable, the Examiner is encouraged to call the undersigned at (650) 463-8133.

Respectfully submitted,

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